

AMENDMENTS TO CLAIMS:

This listing of claims replaces all prior versions and listings of claims in the application:

1. - 30. (Cancelled)

31. (Currently Amended) A spring brake modulating relay valve, comprising:

(a) a housing, said housing further comprising:

a plurality of ports formed in said housing;

an internal chamber in selective communication with said plurality of ports, and

wherein said plurality of ports further comprises:

(i) a supply port for receiving pressurized air, a delivery port, and an exhaust port formed in ~~the lower a~~ lower portion of said housing;

(ii) a port for a primary brake circuit and a port for a secondary brake circuit, said ports being formed in ~~the intermediate an intermediate~~ intermediate portion of said housing; and

(iii) a control signal port formed in ~~the upper an~~ upper portion of said housing; ~~and~~

(b) a relay piston mounted in said chamber, wherein said relay piston further comprises a first internal shoulder;

(c) a modulating piston mounted in said chamber, wherein said modulating piston further comprising a second internal shoulder;

(d) an auxiliary piston mounted in said chamber and forming an extension of ~~the bottom a bottom~~ bottom portion of said modulating piston;

- 25 (e) a first spring for engaging one side of said first internal shoulder and one side of said second internal shoulder, and wherein said first spring permits said relay and said modulating pistons to move as a unit under predetermined pressure conditions;
- (f) a retention ring for providing an abutment surface for the opposite side of said first shoulder and for defining the engagement between said relay and modulating pistons in the absence of air pressure;
- 30 (g) a second spring mounted between said housing and said modulating piston for urging said relay, modulating, and auxiliary pistons toward a first or upper position;
- (h) an exhaust valve for engaging and forming a seal with said auxiliary piston;
- 35 (i) a third spring for urging said exhaust valve toward a seated position within said housing such that said supply port cannot communicate with said delivery port;
- (j) a first check valve in communication with said control signal port normally biased for permitting communication between said control signal port and said relay piston and preventing communication between said control signal port and said
- 40 primary brake circuit port; and
- (k) a second check valve normally biased to preclude communication between said control port and said supply port.

32. (Previously Presented) The spring brake modulating relay valve of claim 31, wherein said second check valve permits communication between said control port and said supply port in the event of a failure in said secondary circuit.

33. (Currently Amended) The spring brake modulating relay valve of claim 31, wherein said pressurized air may be received from a single, secondary air source or ~~a from~~ from primary and secondary sources of pressurized air.

34. (New) A spring brake modulating relay valve, comprising:
- (a) a housing including a plurality of ports and an internal chamber in selective communication with said plurality of ports, the ports including:
- 5 (i) a supply port for receiving pressurized air, a delivery port, and an exhaust port;
- (ii) a port for a primary brake circuit and a port for a secondary brake circuit; and
- (iii) a control signal port;
- (b) a relay piston mounted in said chamber, wherein said relay piston further
- 10 comprises a first internal shoulder;
- (c) a modulating piston mounted in said chamber, wherein said modulating piston further comprising a second internal shoulder;
- (d) an auxiliary piston mounted in said chamber and forming an extension of a bottom portion of said modulating piston;
- 15 (e) a first spring for engaging one side of said first internal shoulder and one side of said second internal shoulder, and wherein said first spring permits said relay and said modulating pistons to move as a unit under predetermined pressure conditions;
- (f) a retention ring for providing an abutment surface for the opposite side of said first shoulder and for defining the engagement between said relay and
- 20 modulating pistons;
- (g) a second spring mounted between said housing and said modulating piston for urging said relay, modulating, and auxiliary pistons toward a first or upper position;
- (h) an exhaust valve for engaging and forming a seal with said auxiliary
- 25 piston;
- (i) a third spring for urging said exhaust valve toward a seated position within said housing such that said supply port cannot communicate with said delivery port; and

(j) a first check valve in communication with said control signal port
30 normally biased for permitting communication between said control signal port and said
relay piston and preventing communication between said control signal port and said
primary brake circuit port.

35. (New) The spring brake modulating relay valve of claim 34, wherein:
a pressure at the control signal port above a predetermined control pressure
causes the modulating piston to be positioned for supplying pressurized air from the
supply port to the delivery port for releasing an associated spring brake.

36. (New) The spring brake modulating relay valve of claim 34, wherein:
the modulating piston is positioned for exhausting air from the delivery port and
applying the associated spring brake if a pressure at the primary brake circuit port is
below a predetermined primary pressure, a pressure at the secondary brake circuit port
5 is above a predetermined secondary pressure, the pressure at the primary brake circuit
port is less than the pressure at the secondary brake circuit port, and a pressure at the
control signal port is above a predetermined control pressure.

37. (New) The spring brake modulating relay valve of claim 36, wherein:
the modulating piston is positioned for supplying air from the supply port to the
delivery port for releasing the associated spring brake if the pressure at the primary
brake circuit port is substantially equal to the pressure at the secondary brake circuit
5 port and the pressure at the control signal port is above the predetermined control
pressure.

38. (New) The spring brake modulating relay valve of claim 37, wherein:
the modulating piston modulates between being positioned for exhausting air
from the delivery port and supplying air from the supply port to the delivery port as a
function of the pressures at the primary brake circuit port and the secondary brake
5 circuit port.

39. (New) The spring brake modulating relay valve of claim 34, wherein:
the modulating piston is positioned for supplying air from the supply port to the
delivery port for releasing an associated spring brake if a pressure at the primary brake
circuit port is above a predetermined primary pressure, a pressure at the secondary
5 brake circuit port is below a predetermined secondary pressure, and a pressure at the
control signal port is above a predetermined control pressure.

40. (New) The spring brake modulating relay valve of claim 34, wherein:
the modulating piston is positioned for supplying air from the supply port to the
delivery port, for releasing an associated spring brake, when a pressure at the control
signal port is below a predetermined control pressure and a pressure at the primary
5 brake circuit port is above a predetermined primary pressure.